

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 5-7, 19, 21 and 23 are currently being examined.

Election/Restrictions

Applicant's election with traverse, with regards to the election by original presentation withdrawal of claim 22, in the reply filed on October 26, 2011 is acknowledged. The traversal is on the ground(s) that the Election should have been based on US restriction practice and not PCT unity of invention practice. Applicant further questions whether a new restriction requirement should have been issued, since an RCE was filed concurrently with the amendment. This is not found persuasive because 37 CFR 1.7475 Section (a) states:

"An international and a national stage application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention"). Where a group of inventions is claimed in an application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art."

Since the application was filed as a national stage application, the rules for national stage applications continue to apply throughout prosecution. Further, see MPEP 1893.03 (d), which states:

“Examiners are reminded that unity of invention (not restriction practice pursuant to 37 CFR 1.141 -1.146) is applicable in international applications (both Chapter I and II) and in national stage applications submitted under 35 U.S.C. 371.” This section also includes the appropriate form paragraphs to be used in a national stage application which include “FP 18.21 Election by Original Presentation in National Stage Applications Submitted Under 35 U.S.C. 371” which shows that unity of invention practice is the appropriate method for election by original presentation in a 371 application.

Regarding Applicant's questions whether a new restriction requirement should have been issued, since an RCE was filed concurrently with the amendment, see MPEP 818.02(a). This paragraph states that “The claims originally presented and acted upon by the Office on their merits determine the invention elected by an applicant in the application, and in any request for continued examination (RCE) which has been filed for the application.”

The requirement is still deemed proper and is therefore made FINAL.

Claim 22 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on October 26, 2011.

Claim Rejections - 35 USC § 112

Claims 1-3, 5-7, 19, 21 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, this claim adds limitations that the binders are film forming. This does not appear to be supported in the instant specification. There is no teaching that the binder is necessarily film forming or that the claimed binders are all film forming. Further the removal of the term "water borne" to describe the organic polymeric binders broadens the scope of the polymers to polymers such as water soluble polymers, which are not necessarily supported by the instant specification. All other claims depend from claim 1 and thus, also fail to comply with the written description requirement.

Claims 3, 19, 21 and 23 present limitations to layered double hydroxide (LDH) salts. The instant specification supports that the nano-particles can be anionic clays (of which layered double hydroxides, not layered double hydroxide salts are a subset thereof) (Page 6, line 10 through Page 8, line 15) or that the particles can be layered hydroxy salts (Page 9, lines 5-30). There does not appear to be support for the claimed subject matter of layered double hydroxide salts. Since layered double hydroxides are themselves salts, the claims would be directed to salts of a salt and thus, are not supported by the instant specification. In order to further prosecution, the Examiner is interpreting that the presence of layered double hydroxides meets the limitations.

The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

Subject to the [fifth paragraph of 35 U.S.C. 112], a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

Claim 23 is rejected under 35 U.S.C. 112, 4th paragraph, as being of improper dependent form for failing to further limit the subject matter of the claim upon which it depends, or for failing to include all the limitations of the claim upon which it depends. Since anionic clays are layered double hydroxides, not salts of layered double hydroxides, this limitation replaces the anionic clay limitation of claim 2 and thus, does not further limit the subject matter of claim 2. It is noted that, if this claim were amended to state a layered double hydroxide, the claim language would be clearer if it was stated "...wherein the anionic clay is a layered double hydroxide.", instead of stating "...wherein the nano-particles are a layered double hydroxide.". This would help to clarify that the new claim is further limiting the claim from which it depends. Applicant may cancel the claim(s), amend the claim(s) to place the claim(s) in proper dependent form, rewrite the claim(s) in independent form, or present a sufficient showing that the dependent claim(s) complies with the statutory requirements.

Claims 1-3, 5-7, 19, 21 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the one or more film-forming organic polymeric binders" in line 10. There is insufficient antecedent basis for this limitation in the claim.

There is only a single film-forming organic binder claimed previously in the claim. Further, the newly added lines at the end of claim 1 are in improper Markush format. The presence of the word "and" twice within the grouping makes it unclear which choices are encompassed within the Markush group.

All other claims depend from claim 1 and thus, are also rendered indefinite.

Claim 3 claims materials from which the layered double hydroxide salt is selected. However it is unclear if these materials are to be formed into a salt or if the claim instead should read "wherein the anionic clays comprise at least one layered double hydroxide (LDH) selected from the group consisting of ..." Similarly in claims 19, 21 and 23, it is unclear if these materials are meant to layered double hydroxides or salts of these salts. In order to further prosecution, the Examiner is interpreting that the presence of layered double hydroxides meets the limitations.

Claim Rejections - 35 USC § 102

Claims 1-3, 5-7, 19, 21 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Rohrbaugh et al. (US 2002/0028288) in view of evidence provided by Bejoy (Hydrotalcite article) and evidence provided by Campbell (US 5,853,809).

Regarding claims 1-3, 19, 21 and 23, Rohrbaugh (abstract) teaches coating compositions comprising a nanoparticle system that can provide anti-soil deposition (stain blocking). The nanoparticles (Paragraph 53) can be hydrotalcite. As evidenced by Bejoy (Page 57), hydrotalcite is inorganic anionic clay and has a layered structure with a crystal structure with positively charged layers (Box 1, Page 58) and is a layered

double hydroxide (LDH). The coating composition (Paragraph 252) can comprise the nanoparticles, an aqueous carrier medium (water borne) and polymers (organic binder). Since the modification of the LDH is optional, the presence of the nanoparticles meets the limitations of claims 19 and 21. The coating composition can comprise the nanoparticles at less than or equal to about 50% by weight of the coating composition (Paragraph 81). The coating composition can comprise adjunct materials at about 0.01 to about 99.99% by weight of the coating composition (Paragraph 91). The adjunct materials include polymers (organic binders) (Paragraph 252). The water borne coating can comprise polymeric materials adsorbed on the nanoparticles (Paragraph 116). The nanoparticles are dispersed in the water borne coating and thus, the polymer is a dispersion in the aqueous carrier medium. The polymer can be a polymer formed from monomers of (meth)acrylate esters of fluorinated alkyl groups (acrylic polymers). As evidenced by Campbell (Column 1, line 37 through Column 2, line 40), acrylic polymers are film forming binders. The use of the coating composition as a film-forming coating on a substrate that prevents water-extractable substances contained in the substrate from leaching into the coating composition is an intended use of the coating composition. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Regarding claim 5, the coating can also comprise additives including many of the additives of the instant claim (Paragraph 252).

Regarding claim 6, the water borne coating can be a clear coat composition (Paragraph 264).

Regarding claims 7, 19 and 21, the coating composition can also comprise a dispersing agent at about 0.01 to about 5% by weight of the coating composition (Paragraphs 70, 88, and 89).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-7, 19, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyata (US 4,710,551) in view of evidence provided by Bejoy (Hydrotalcite article) and evidence provided by Koyanagi et al. (US 3,669,946).

Regarding claims 1-3 and 23, Miyata (Column 1, lines 5-33) teaches an aqueous (water borne) suspension polymerized vinyl chloride copolymer that also contains a hydrotalcite compound. As evidenced by Bejoy (Page 57), hydrotalcite is inorganic anionic clay and has a layered structure with a crystal structure with positively charged layers (Box 1, Page 58) and is a layered double hydroxide (LDH). The average size of the hydrotalcite compound (Miyata, Column 3, line 67 through Column 4, line 3) is 0.01 to 1 micron (10-1000 nm) and thus, the particles are nanoparticles. Since the hydrotalcite compound is the same type of additive as in the instant application, it is a

stain blocking agent to the same degree as in the instant application. The polymer can be a copolymer of vinyl acetate (Column 3, lines 17-30) and since it is polymerized as an aqueous suspension, it is a vinyl acetate copolymer dispersion. Thus, the polymer is a film-forming binder in the same manner as is a vinyl acetate copolymer of the instant application. The composition of Example 1 (Column 6, lines 20-39) meets the claimed weight percentages of the inorganic nano-particles and the polymeric binder.

The Example 1 coating is a polyvinyl chloride polymer only, not a vinyl acetate/vinyl chloride copolymer.

However, the amount of water and hydrotalcite (Column 4, lines 49-60) and relative amounts of vinyl acetate and vinyl chloride (Column 3, lines 17-30) can be adjusted in ranges that would result in binder and hydrotalcite weight percentages that would overlap the claimed ranges. As set forth in MPEP 2144.05, in the case where the claimed range "overlap or lie inside ranges disclosed by the prior art", a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

The use of the coating composition as a film-forming coating on a substrate that prevents substances contained in the substrate from leaching into the coating composition is an intended use of the coating composition. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Regarding claim 5, the composition can also comprise a filler (Column 5, line 12-27).

Regarding claim 6, the composition can have transparency (Column 2, lines 45-56) and thus, can be considered to be a clear coat composition.

Regarding claim 7, the composition (Column 5, lines 7-27) can also comprise suspension stabilizers at about 0.01 to about 3% by weight of the vinyl chloride monomer. Based off of the weight percentage of monomer which forms the polymer in Example 1, this provides for an amount of suspension stabilizer that meets the claimed weight percentage. The suspension stabilizers (Column 5, lines 7-11) are the conventional stabilizers taught in Column 1, lines 55-66. While these compounds are referred to as suspension stabilizers, as evidenced by Koyanagi (Column 1, lines 8-14) several of these compounds are considered to be dispersing agents for polyvinyl chloride suspension polymerization.

Regarding claims 19 and 21, Miyata (Column 4, lines 24-35) teaches that the hydrotalcite can be surface coated with colloidal silica or an anionic surface-active agent (dispersing agent). It is further, noted that since the modification is optional, the presence of the hydrotalcite without modification also meets these claims.

Response to Arguments

Applicant's arguments filed October 26, 2011 and December 8, 2011 have been fully considered but they are not persuasive.

Applicant argues that the binders described in the present application are necessarily film-forming or they would not be able to form a coating layer. However, individual dry particles could form a coating layer, but would not by necessity be film-forming.

Applicant argues that the anionic clay is a salt and thus the claim limitations directed to layered double hydroxide salts are supported. However, since layered double hydroxides are themselves salts, the claims would be directed to salts of a salt and thus, are not supported by the instant specification.

Applicant argues that the Miyata (US 4,710,551) reference does not disclose a coating composition, that the limitations of the function of the coating composition results in a structural difference over the components themselves and that Miyata only discloses a polyvinyl chloride which cannot be considered to be an inherent film-forming polymeric binder. However, Applicant has provided no evidence that the claimed function results in a structural difference. Applicant has also not provided evidence to show that polyvinyl chloride is not film-forming. Further, since the polymer of Miyata can be a vinyl acetate copolymer and can comprise the other claimed elements in the same amount as in the instant application, the Examiner maintains that the composition of Miyata meets the claim limitations.

Applicant argues that Rohrbaugh et al. (US 2002/0028288) does not require a binder and that the polymeric material is not necessarily a binder. However, Rohrbaugh teaches that the coating composition can comprise adjunct materials at about 0.01 to about 99.99% by weight of the coating composition (Paragraph 91). The adjunct

materials include polymers (organic binders) (Paragraph 252). The water borne coating can comprise polymeric materials adsorbed on the nanoparticles (Paragraph 116). The nanoparticles are dispersed in the water borne coating and thus, the polymer is a dispersion in the aqueous carrier medium. The polymer can be a polymer formed from monomers of (meth)acrylate esters of fluorinated alkyl groups (acrylic polymers). As evidenced by Campbell (US 5,853,809) (Column 1, line 37 through Column 2, line 40), acrylic polymers are film forming binders.

Applicant argues that the coating composition of Rohrbaugh is solvent-borne, not water-borne. However, Rohrbaugh teaches that the coating composition (Paragraph 252) can comprise an aqueous carrier medium (water borne).

Applicant argues that the clearcoats of Paragraph 265 of Rohrbaugh do not contain nanoparticles. However, the subsequent paragraphs 267 and on teach that the nanoparticles can be present in the clear coat layer.

Applicant argues that the coating composition of Example 1 of Rohrbaugh is not a waterborne coating and has a cationic clay. However, "applicant must look to the whole reference for what it teaches. Applicant cannot merely rely on the examples and argue that the reference did not teach others." In re Courtright, 377 F.2d 647, 153 USPQ 735,739 (CCPA 1967). As stated above, the Examiner maintains that the overall teachings of Rohrbaugh meet the claim limitations.

Applicant argues that the coating composition of Rohrbaugh would not produce the claimed leaching prevention. However, Applicant has not provided any evidence that this is the case. Further, as detailed above, the teachings of Rohrbaugh

encompass coating compositions that have all of the claimed elements in the claimed proportions and thus, would provide the same function.

The telephonic interview request was accomplished on November 8, 2011 and the Interview Summary was previously electronically delivered to Applicants' representative and is included in the prosecution history of the case.

Due to amendments to the claims, the objections to the specification and the rejections over 35 U.S.C. 112 from the April 28, 2011 Office Action are withdrawn and replaced by the 35 U.S.C. 112 rejections presented above.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth A. Robinson whose telephone number is (571)272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. A. R./
Elizabeth Robinson
Examiner, Art Unit 1787

February 2, 2012

/Callie E. Shosho/
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